



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
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JUN 04 2013

Jim Thompson
Brandon Oyer
Seattle Steam Company
1325 Fourth Avenue
Suite 1440
Seattle, WA 98101

**Re: PRELIMINARY PERMIT to Drill and Test a Well under Water Right Application
G1-28722**

Dear Mr. Thompson:

This letter serves as a Preliminary Permit to drill and test a well under Groundwater Application G1-28722. **PLEASE READ THIS LETTER CAREFULLY. In accordance with RCW 90.03.290, failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the preliminary permit and the associated water right application.**

The above water right application requests the withdrawal of public groundwater at the rate of 250 gallons per minute (gpm) for industrial use from a well in the SE¼ of Section 31, Township 25 North, Range 4 East, W.M. in King County.

The purpose of this preliminary permit is three-fold. First, this permit is intended to provide information that can be used to determine the well's capacity to produce the requested instantaneous quantity, and to determine the ability of the aquifer to transmit water. Second, this permit is intended to provide information regarding the potential for seawater intrusion into the aquifer resulting from the proposed withdrawal. Lastly, this permit is intended to provide information regarding any potential impacts to existing wells due to the operation of the proposed withdrawal.

The Department of Ecology (Ecology) is likely to deny new water right applications in areas where sea water intrusion into the aquifer has been documented. Elevated groundwater chloride concentrations may be attributed to a high level of mineralization, as opposed to intruded by sea water. Because of this, it is important to distinguish between hard groundwater and groundwater that has been impacted by sea water intrusion. The water quality analyses required as part of this preliminary permit are necessary to distinguish between groundwater that has been impacted by sea water and groundwater that is highly mineralized.



Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a preliminary permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application. Given the uncertainties regarding the ability of the aquifer and well to produce the required water volume, and uncertainties regarding the changes in water quality, a pumping test is required to provide the necessary information to address these uncertainties.

You are hereby granted a PRELIMINARY PERMIT to proceed with testing the well you intend to use for your steam power generation operations. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until **June 30, 2014**, unless sooner revoked by Ecology.
2. All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under chapter 18.104 RCW (Washington Water Well Construction Act of 1971) and chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells). If a variance is required for construction, alternate construction shall be approved by request to the department.
3. An access port, as described in the Department of Ecology's Groundwater Bulletin No. 1 (ECY 040-1-3, Rev. 12/90 [copy enclosed]), shall be installed and maintained. In order to facilitate accurate recovery data collection, the system shall incorporate backflow check-valve(s) that will prevent water from flowing back into the well when the pump is shut off.
4. *Background water level data* shall be collected from the pumping well prior to the start of the pump test. *Tidal and barometric pressure data* shall also be collected during this period to evaluate background water level fluctuations.
5. An aquifer test shall be conducted under the supervision of a professional groundwater consultant. The well shall be tested in a manner consistent with best scientific practice to determine whether the well is capable of providing adequate water for its proposed use, without contributing to seawater intrusion into the aquifer. This test may take the form of a step-test (variable pump rate) or constant rate pump test, but only the highest sustained pumping rate may be permitted for purposes of appropriation and final certificating as a water right. The *highest sustained rate* shall be considered the pumping rate maintained with stabilization of the pumping well water level occurring for at least four hours. Stabilization is defined as a drop in water level of less than or equal to 0.1 foot drawdown per hour during pumping.
6. *Tidal and barometric pressure data* shall be collected for the duration of the pump test, as well as during the recovery period.
7. Pumped water produced during the test shall be routed away from the pumping well and all observational wells, and shall be discharged such that this water will not influence the test in any way. This water may also be stored for future use.

8. Water levels in the pumping well and all observational wells shall be monitored and recorded throughout the duration of the aquifer test (which includes the recovery period). Generally more frequent measurements are required at the beginning of the test when the rate of water level change is greatest. Refer to WRIS Information Bulletin No. 30 for the recommended frequency of measurements throughout the aquifer test. Additionally, water levels should be measured in feet, using 10ths and 100ths of a foot rather than inches.
9. At the completion of pumping, recovery data shall be collected from *all* wells until the pumped well nears pre-pumping static conditions and the water level recovery rate is less than 0.1 foot per hour.
10. The following water quality sampling and analyses will be used by the Department of Ecology when evaluating your application. **Please be aware that the state or county health department may require additional testing prior to the approval of your project. If your project involves a public water system, please check with the appropriate health agency to determine what additional testing is required prior to conducting the test.** All water sample analyses conducted pursuant to this PRELIMINARY PERMIT shall be performed by a laboratory accredited by the Washington State Department of Ecology.

Groundwater sampling and analysis shall occur as follows:

- For the pumped well, water quality samples shall be collected at the following times during the pump test: *within the first 30 minutes, and within one hour of the conclusion of the test.*
 - All samples shall be analyzed for *chloride, conductivity, and hardness (as CaCO₃).*
11. When the aquifer test is complete, the data shall be analyzed and all pertinent information compiled into a completion report and submitted to the Department of Ecology, Northwest Regional Office. This report shall address the following:
 - The distance and time drawdown response within the producing aquifer to the proposed groundwater withdrawal.
 - Aquifer transmissivity.
 - Aquifer storage coefficient or specific yield.
 - The measured and potential effect of the proposed groundwater withdrawal on any existing groundwater and surface water users, wetlands, springs, lakes, streams, etc.
 - Seawater intrusion potential.

The report shall also include the following:

- A well construction report (well log for the pumping well and all observation wells, if available). This must include the total depth and screened interval depths for all

wells, as well as the pump intake depth for the pumping well.

- Distance, to the nearest foot, from the pumping well to each observation well and a map indicating all well locations.
 - Copies of the original field data sheets and a discussion of the methods and calculations employed during determination of aquifer characteristics and discharge measurements.
 - Land surface elevations for all measuring points and method used for determining.
 - All water level data collected pursuant to this permit shall be submitted to the Department of Ecology in electronic form (such as a spreadsheet) along with a hard copy, if it exists.
 - Tidal fluctuation and barometric pressure data shall be plotted on a graph along with water level data collected during the pump test.
 - A copy of any laboratory test results, including chain-of-custody documentation.
12. All expenses, risks, and liabilities incurred during well testing shall be borne by the applicant. If senior water right holders, including those with rights to surface water bodies and wells exempt from permitting under RCW 90.44.050 are adversely affected during any portion of the aquifer test, the test shall be terminated immediately.

This PRELIMINARY PERMIT grants the right to use this well for testing purposes only. No further use will be allowed from the well until such time as specific approval has been granted. Approval will not be considered until such time as the above conditions have been met. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. **If the applicant fails to comply with the conditions of this PRELIMINARY PERMIT, it and the associated water right application may be canceled.**

You have a right to appeal this action to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this document. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of this document:

- File your appeal and a copy of this document with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this document on Ecology in paper form - by mail or in person. (See addresses below.) Email is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

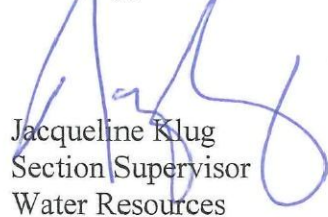
| Street Addresses | Mailing Addresses |
|---|--|
| Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 | Department of Ecology Attn: Appeals Processing Desk P.O. Box 47608 Olympia, WA 98504-7608 |
| Pollution Control Hearings Board Environmental Hearings Office 1111 Israel Road SW, Suite 301 Tumwater, WA 98501 | Pollution Control Hearings Board P.O. Box 40903 Olympia, WA 98504-0903 |

For additional information visit the Environmental Hearings Office Website:
<http://www.eho.wa.gov>

To find laws and agency rules visit the Washington State Legislature Website:
<http://www1.leg.wa.gov/CodeReviser>

Should you have any questions regarding this PRELIMINARY PERMIT, please contact Noel Philip at (425) 649-7044 or at noel.philip@ecy.wa.gov.

Sincerely,


Jacqueline Klug
Section Supervisor
Water Resources

jk/dh/mc

By certified mail: 7012 3460 0000 2586 7698

Enclosures: WRIS Information Bulletin 30
Groundwater Bulletin No. 1
Your Right to be Heard